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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/560,171	12/09/2005	Yukio Aoki	09852/0203745-US0	1361
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DARBY & DARBY P.C. P.O. BOX 770 Church Street Station New York, NY 10008-0770			EXAMINER HEVEY, JOHN A	
			ART UNIT 1793	PAPER NUMBER
			NOTIFICATION DATE 07/09/2008	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/560,171	Applicant(s) AOKI, YUKIO	
	Examiner JOHN A. HEVEY	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 4/10/2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/20/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Application

Claims 5-8 are cancelled, claims 1 is amended. Claims 1-4 are pending and presented for examination.

Status of Rejections

The rejection of claims 1 and 5 under 35 USC 112 has been withdrawn, with applicant interpretation of the claimed language stated on the record to include a combined total of Ta carbonitride and Nb carbonitride of 5-7 wt%.

The rejections of claims 1, 3-5 and 7-8 under 35 USC 103 over Sakuragi and claims 2 and 6 over Sakuragi in view of Heinrich et al. have been withdrawn in view of applicant amendment of claim 1.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

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2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
3. Claims 1 and 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuda et al. (US6057046).

In regards to claims 1, Tsuda et al. ("Tsuda") teaches a sintered alloy useful for cutting tools, comprising beta-WC, 5-25 wt% of a binder comprising Ni and Co, and 2-15 wt% of one or more selected from Ta carbonitride, Nb carbonitride, and others (see claim 7). It would have been obvious to one of ordinary skill in the art to select from the portion of the overlapping ranges. Overlapping ranges have been held to establish prima facie obviousness (see MPEP 2144.05 [R-5]). Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to select Ta carbonitride and Nb carbonitride from the disclosed species in order to increase the reliability and resistance to thermal shock of the material.

In regards to claim 3, although the reference is silent to the specific fracture toughness of the material at room temperature, Tsuda teaches a material having substantially the same composition and method of making the composition it would necessarily follow that the composition would possess the same properties as instantly claimed.

In regards to claim 4, Tsuda is drawn to cemented carbide materials used to form surface coated cutting tools (see for example, Tsuda col 2, ln 61-67). Thus, it would have been obvious to one of ordinary skill in the art to form a

surface coated gear cutting tool comprising a cemented carbide material as taught by Tsuda as described above. The use of WC based cemented carbide materials for gear cutting tools is well known in the art (Tsuda col 1, ln 22-30) and one of ordinary skill in the art would have recognized the ability to use such a material to form said tool, in order to benefit from the enhanced reliability and thermal shock resistance of the material as taught by Tsuda.

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuda et al. (US6057046) in view of Heinrich et al. (US7163657).

Tsuda teaches 2-15 wt% of one or more selected from Ta carbonitride, Nb carbonitride, and others (see claim 7) however fails to teach the relative contents of Ta and Nb as required by claim 2.

Heinrich et al. ("Heinrich") teaches a cemented carbide material comprising WC, Co binder, and at least one additional carbide, nitride, or carbonitride (see col 6, ln 15-34). Heinrich further teaches examples comprising carbides of Nb, and Ta falling within the contents required by claim 2 (see Table 14).

It would have been obvious to one of ordinary skill in the art to select from the teachings of Tsuda a WC-Co material further comprising carbonitrides of Ta and Nb falling within the instantly claimed ranges. Tsuda in view of Heinrich teach the substitutability of carbides, nitrides, and carbonitrides of Ta and Nb as additives to WC-Co materials, and optimization of the their respective contents

within the disclosed ranges would have been obvious to one of ordinary skill in the art at the time of the invention in order to increase the reliability and toughness of the material for cutting tool applicability.

Response to Arguments

5. Applicant's arguments with respect to claims 1-4 have been considered but are moot in view of the new ground(s) of rejection.
6. Applicant has amended the scope of claim 1 by narrowing the content of Ta carbonitride and Nb carbonitride, therefore necessitating a new grounds of rejection.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHN A. HEVEY whose telephone number is (571)270-3594. The examiner can normally be reached on Monday - Friday 7:30 AM to 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica Ward can be reached on 571-272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. A. H./
Examiner, Art Unit 1793

/Jessica L. Ward/
Supervisory Patent Examiner, Art Unit 1793

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